



**UNIVERSITI KUALA LUMPUR**  
**Malaysian Institute of Marine Engineering Technology**

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**FINAL EXAMINATION**  
**JANUARY 2016 SESSION**

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**SUBJECT CODE** : LGB 20903  
**SUBJECT TITLE** : SHIP PRODUCTION TECHNOLOGY  
**LEVEL** : DEGREE  
**TIME / DURATION** : ( 3 HOURS )  
**DATE** : 27<sup>th</sup> MAY 2016

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
  2. This question paper is printed on both sides of the paper.
  3. Please write your answers on the answer booklet provided.
  4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
  5. Answer FOUR (4) questions only.
  6. Answer all questions in English language only.
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**INSTRUCTION: Answer four (4) questions only.**  
**Please use the answer booklet provided.**

**Question 1**

- a) With the aid of flow chart, briefly explain the typical steel shipbuilding process from marketing to delivery of ship. Briefly describe the three (3) specific stages of the shipbuilding process (use sketches if necessary)  
(10 marks)
- b) Despite high and global competition, shipbuilding industry is consider essential to the economic and strategic of the nation. Considering all factors and viewpoints, discuss on the global shipbuilding status and trend.  
(6 marks)
- c) One of the important aspects of the operations in shipyards is their organization. These organization are divided into departments, sections and units. Describe the responsibility and functions of the '**engineering department**' in a shipyard organization  
(5 marks)
- d) Describe the functions of **Marketing** in shipbuilding process.  
(4 marks)



**Question 2**

- (a) In a process of designing a new shipyard layout, several aspects and factors are looked into for considerations mainly, the capacity of the shipyard. Illustrate the layout logic flow chart for the development of a new shipyard.  
(10 marks)
- (b) Computer Integrated Manufacturing (CIM) is one of the modern applications in shipbuilding. Briefly describe the benefits and its future trends of CIM.  
(6 marks)
- (c) In the shipyard layout for production of steel ships, you are required to install robots. Propose and describe the two (2) types of robots and the ideal location of the robots.  
(6 marks)
- (d) The shipyard for the production of steel ships will install a CAD/CAM system. For the installation process, a database of information is required. Identify the type of information required to ensure the CAD/CAM system will run smoothly.  
(3 marks)



**Question 3**

(a) Refer to the table below:

Table 1.0: Activity Data

Activity	Activity Description	Immediate Predecessors	Duration (Days)
A	Detail Design of FPSO	-	3
B	Procurement of steel plates	-	7
C	Cutting of plates using CNC machine	B	7
D	Unit pre-assembly for block 1	A, C	2
E	Assembly of block 1 by welding joint	C	5
F	Piping pre-outfit	C	5
G	Outfit installation	D,E,F	5

(i) Draw the Network Diagram and identified the Critical Path. (10 marks)

(ii) Define the "critical path" and its functions (2 marks)

b) Mr. Azhar, a production engineer has to prepare a basic planning for the production department. A new project of building a Liquefied natural gas (LNG) carrier has been received by the shipyard. Briefly discuss four (4) considerations that Mr Azhar should include in the planning of the construction of LNG by modular construction. (8 marks)

c) Briefly explain the advantages and limitations to establish Production Planning and Control system for ship production technology. (5 marks)





## Question 4

- (a) MSEB Sdn Bhd are experienced in building vessel type offshore petrol vessels. It has signed a contract with the Malaysian Navy to build a new type of offshore petrol vessels. The production manager has decided to apply **Design for Production** to ensure that the production will be cost effective. Define the concept of design for production and briefly explain the procedures in detail.

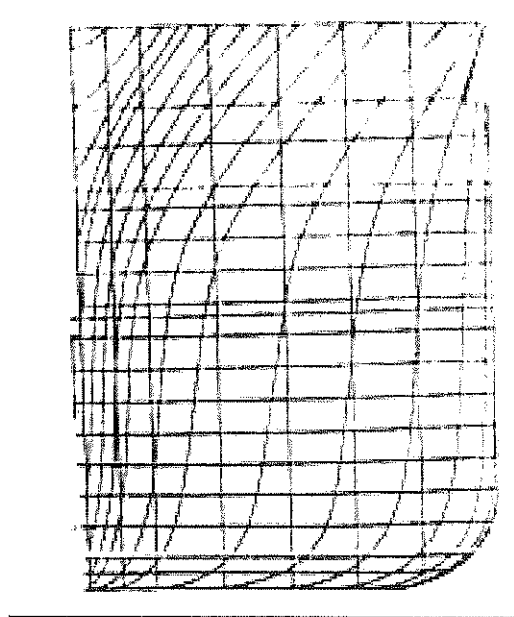
(10 marks)

- (b) Briefly stated your opinion the factors should be considered for selecting location for a **new** shipyard.

(5 marks)

- (c) Apply the concepts of Design for Production for the construction below. Describe in detail by using sketches and detailed descriptions.

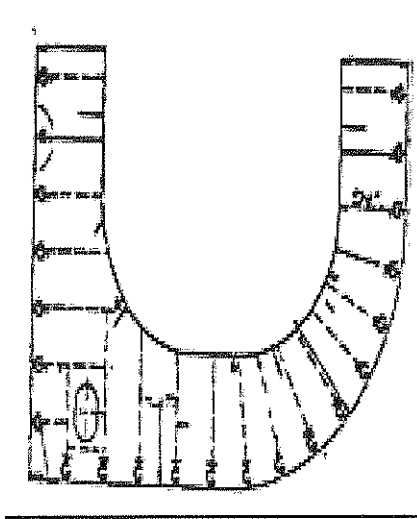
i)



(5 marks)



ii)



(5 marks)

**Question 5**

- (a) Briefly define the **Accuracy Control System (ACS)**.  
(3 marks)
- (b) A large and experienced shipyard, MSES Shipyard has the capability to produce patrol vessels. Due to the optimization of the shipyard production processes, the accuracy control system has to be introduced. Briefly explain in detail how to start up an accuracy control system in MSES Shipyard.  
(12 marks)
- (c) Briefly explain the two (2) main prerequisites before implementation of ACS in shipbuilding process.  
(5 marks)
- (d) Briefly explain five (5) reasons for shipyards to implement accuracy control in shipbuilding process.  
(5 marks)

**END OF QUESTION**

